



June 27, 2018

**VIA U.S. MAIL**

Marianne Andrews  
BP Amoco Chemical Company – Cooper River Plant  
1306 Amoco Dr.  
Wando, SC 29492

Re: Notice of SC DHEC Staff Decision  
Prevention of Significant Deterioration (PSD) Final Determination and Construction Permit No.  
0429-0029-CU

Dear Ms. Andrews:

The South Carolina Department of Health and Environmental Control ("DHEC") hereby provides notice that a PSD Final Determination and Construction Permit has been issued in accordance with the plans, specifications and other information submitted in the construction permit application, as amended.

Electronic copies of this notice and your permit were emailed to you at [marianne.andrews2@bp.com](mailto:marianne.andrews2@bp.com) on June 27, 2018. If you did not receive that email, please notify Octavia Brown, via e-mail at [brownjo@dhec.sc.gov](mailto:brownjo@dhec.sc.gov), or call (803) 898-4339 immediately.

A DHEC staff decision involving the issuance, denial, renewal, suspension or revocation of a permit may be appealed by the applicant, permittee, licensee, and/or affected persons. Pursuant to S.C. Code Section 44-1-60(E)(2), "[t]he staff decision becomes the final agency decision fifteen calendar days after notice of the staff decision has been mailed to the applicant, unless a written request for final review accompanied by filing fee is filed with the department by the applicant, permittee, licensee, or affected person."

For your information, a DHEC "Guide to Board Review" is available at the following website:  
<http://www.scdhec.gov/Agency/BoardofDirectors/GuidetoBoardReview/>

Sincerely,

Steve McCaslin, P.E., Director  
Air Permitting Division  
Bureau of Air Quality

cc: Permit File: 0420-0029  
ec: Marianne Andrews ([marianne.andrews2@bp.com](mailto:marianne.andrews2@bp.com))  
James Purvis, Terry Johnson, Mario Zuniga, Lorinda Shephard, EPA Region 4  
Catherine Collins, FWS  
Wendy Boswell, BEHS  
Robert vandenMeiracker, TRC ([rvandenmeiracker@trcsolutions.com](mailto:rvandenmeiracker@trcsolutions.com))  
Michael Shroup, Source Evaluation Section  
Connie Turner, Air Toxics Section



## **PUBLIC NOTICE**

State of South Carolina (SC)  
Department of Health and Environmental Control (DHEC)  
Bureau of Air Quality (BAQ)  
2600 Bull Street  
Columbia, SC 29201  
(803) 898-4123

Notice of a Draft Air Prevention of Significant Deterioration (PSD) Construction Permit

### **PUBLIC NOTICE #18-019-PSD**

**COMMENT PERIOD:** Public Notice will begin on **May 25, 2018** and will end at close of business, which is 5:00 p.m. on **June 23, 2018**.

#### **BP Amoco Chemical Company-Cooper River Plant (BPCR)**

**1306 Amoco Drive  
Wando, South Carolina 29492  
(Berkeley County)  
AIR PERMIT # 0420-0029-CU**

(BPCR) has applied to the SC DHEC, BAQ, for a Prevention of Significant Deterioration (PSD) air construction permit to change Carbon Monoxide (CO) Best Available Control Technology (BACT) limits at its existing facility. A Preliminary Determination, draft Construction Permit, and draft Statement of Basis have been written by the BAQ outlining this proposed project and applicable regulations. In addition to other state and federal air quality regulations, the draft permit is subject to review under SC DHEC Regulation 61-62.5, Standard No. 7 "Prevention of Significant Deterioration (PSD)." This regulation is equivalent to Title 40 of the Code of Federal Regulations, Part 52.21 "Prevention of Significant Deterioration of Air Quality." Under these regulations, a facility must demonstrate that it will not significantly deteriorate the air quality in its region prior to constructing or modifying sources of air pollutants. The draft permit has not yet been approved and is open to comment from the public, the United States Environmental Protection Agency (EPA), the Federal Land Managers, the chief executives of Berkeley, the Cities of Goose Creek, North Charleston and Mount Pleasant, and the Berkeley-Charleston-Dorchester Council of Government.

BPCR produces only purified Terephthalic Acid (PTA) to make polyester fibers and films. The facility is proposing to draw from three condensers rather than 2, as this provides better solvent and catalyst recovery and a more stable operation. The facility is also requesting to increase the CO BACT limit for the #1 Oxidizer (OX) from 4.1 pounds per hour (lb/hr) to 14 lb/hr, based on a 30-day rolling average. In addition, the facility proposes to decrease the CO BACT limit for the high pressure vent gas treatment system (HPVGTS) from 87.9 lb/hr to 72.0 lb/hr, based on a 30-day rolling average. Emissions generated by this facility as a result of the proposed project will include CO.

Air dispersion modeling has indicated that the release of emissions from this facility will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). There will be no Class I Areas impacted and no degree of increment consumption resulting from this proposed project.

Pursuant to Part 70.7(d)(1)(v), this construction permit will be incorporated as an administrative amendment into the existing Title V permit with no additional public comment period. All public participation and EPA requirements will be fulfilled with notice of the construction permit action. All emissions limitations and conditions in the draft PSD construction permit have been written in accordance with the SC Title V Operating Permit Program.

Interested persons may review the materials drafted and maintained by DHEC for this facility and submit written comments on the draft permit by the end of the public notice period listed above, to Ruthie Hall at the above DHEC address or by e-mail at [hallmr@dhec.sc.gov](mailto:hallmr@dhec.sc.gov). All comments received by the end of the notice period, will be considered when making a decision to approve, disapprove, or modify the draft permit. Where there is a significant amount of public interest, DHEC may hold a public hearing to receive additional comments. Public hearing requests should be made in writing to Ruthie Hall at the above DHEC address or by e-mail. If a public hearing is requested and scheduled,

notice will be given thirty (30) days in advance. If you have questions concerning the draft permit, please contact James Robinson at the phone number listed above. A final review request may be filed after a permit decision has been made. Information regarding final review procedures is available from DHEC's legal office at the above address or by calling (803) 898-3350. Information relative to the draft permit will be made available for review through the end of the notice period listed above, at the DHEC Columbia Office listed above and at the following location:

SC DHEC, Charleston BEHS Office, 1362 McMillan Avenue, Suite 300, Charleston, SC 29405

Information on permit decisions and hearing procedures is available by contacting DHEC at either address listed above. Copies of a draft permit or other related documents may be requested in writing to the Freedom of Information Office; fees may apply. Please bring this notice to the attention of persons you know will be interested in this matter.

This public notice, along with the Preliminary Determination which includes the draft permit and draft statement of basis, may be viewed through the end of the notice period on DHEC's website at: <http://www.scdhec.gov/PublicNotices/>.



S.C. Department of Health and  
Environmental Control

# **Bureau of Air Quality Prevention of Significant Deterioration Final Determination**

**BP Amoco Chemical Company – Cooper River Plant  
Wando, South Carolina  
Berkeley County**

Permit No. 0420-0029-CU  
June 27, 2018

This review was performed by the Bureau of Air Quality of the South Carolina Department of Health and Environmental Control in accordance with South Carolina Regulations for the Prevention of Significant Air Quality Deterioration.

**Reviewed by:**

A handwritten signature in blue ink, appearing to read "J.C. Robinson", written over a horizontal line.

James C. Robinson, P.E.  
Environmental Engineer  
Bureau of Air Quality

**Approved by:**

A handwritten signature in blue ink, appearing to read "Steve McCaslin", written over a horizontal line.

Steve McCaslin, P. E., Director  
Air Permitting Division  
Bureau of Air Quality

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## 1.0 Time Line (Permitting Action History)

June 21, 2012	Representatives of BP Amoco Chemical Company - Cooper River Plant (BPCR) and TRC Environmental Corporation (TRC) met with the South Carolina Department of Health and Environmental Control Bureau of Air Quality (BAQ) personnel to discuss a proposed expedited Prevention of Significant Deterioration (PSD) construction permit application for a major plant modernization/debottleneck project.
March 20, 2013	Representatives of BPCR and TRC met with SCDHEC personnel for a second time to discuss the draft expedited PSD construction permit application, and how does the addition of two new cooling tower cells relate to the propose PSD project.
April 11, 2013	TRC, on behalf of BPCR, submitted an expedited PSD construction permit application to SCDHEC proposing to modernize and debottleneck the plant at BPCR located in Wando, South Carolina.
April 18, 2013	SCDHEC notified BPCR and TRC via email and phone that SCDHEC accepted the PSD construction permit application into the expedited program.
April 19, 2013	Engineering Services of BAQ e-mailed a copy of the application to Catherine Collins (US Fish and Wildlife Services) and Heather Ceron (US EPA – Region IV) and informed them that BAQ had deemed the application complete.
April 22, 2013	BAQ Permitting issues letter to BPCR to request additional information and clarify items in the application. Facility was given a May 6, 2013 deadline to provide requested information.
April 26, 2013	Tracy Price of SCDHEC sends email to BPCR to request additional information and clarify items regarding the modeling portions of the application.
April 26, 2013	BPCR sent email to James Robinson and Tracy Price requesting a meeting to discuss the information requested by SCDHEC.
May 2, 2013	BPCR and TRC met with SCDHEC at 2600 Bull St., Conference Room 2290, to discuss the information requested by SCDHEC.

May 8, 2013	TRC, on behalf of BPCR, submitted the information as requested by SCDHEC on April 26, 2013.
May 9, 2013	Air Quality Modeling Section (Modeling) sent email to BPCR and TRC requesting additional information on modeling items.
May 9, 2013	TRC, on behalf of BPCR, emailed additional information as requested by Modeling on May 9, 2013.
May 13, 2013	TRC, on behalf of BPCR, submitted additional information as requested by SCDHEC (James Robinson) on April 26, 2013.
May 15, 2013	Modeling sent email to BPCR and TRC requesting additional information and clarification on modeling items.
May 21, 2013	TRC, on behalf of BPCR, emailed additional information as requested by SCDHEC Modeling on May 15, 2013.
May 21, 2013	Brent Pace of BPCR and James Robinson of SCDHEC discussed PSD project updates via phone call.
June 6, 2013	SCDHEC personnel held conference call with BPCR and TRC to discuss PSD netting analysis. BAQ requested that BPCR submit a proper netting analysis of PSD project.
June 12, 2013	SCDHEC personnel held conference call with BPCR and TRC to discuss additional information (control device descriptions, more detailed process and proposed changes descriptions, detail discussion synthetic minor/PSD avoidance limits, reduction in VOC emissions in Wastewater Treatment Area) needed for the PSD application.
June 12, 2013	SCDHEC personnel held conference call with EPA personnel (Katie Lusky) to discuss PSD netting analysis for BPCR PSD project.
June 14, 2013	Brent Pace of BPCR and James Robinson of SCDHEC held follow up phone call for clarification on June 12, 2013 phone call.
June 18, 2013	BAQ Permitting sent email to BPCR and TRC requesting additional information on PSD netting analysis, significant emissions increases, and other items needed for the Preliminary Determination.
June 20, 2013	Brent Pace of BPCR and James Robinson of SCDHEC discussed PSD

project updates via phone call.

June 25, 2013 James Robinson held conference call with BPCR and TRC to discuss additional information on PSD netting analysis, significant emissions increases, and other items needed for the Preliminary Determination. BPCR proposes to submit a revised PSD application.

June 26, 2013 Brent Pace of BPCR and James Robinson of SCDHEC held follow up phone call for clarification on June 25, 2013 phone call.

July 2, 2013 Brent Pace of BPCR requested a one week extension to submit a revised application, to July 12, 2013. James Robinson of SCDHEC granted one week extension.

July 10, 2013 Brent Pace of BPCR and James Robinson of SCDHEC discussed clarification of PSD emissions calculations via phone call. Mr. Pace requested an additional one week extension to submit a revised application, to July 19, 2013. Mr. Robinson of SCDHEC granted additional one week extension.

July 19, 2013 Brent Pace of BPCR and James Robinson of SCDHEC discussed PSD updates. Mr. Pace requested an additional two week extension to submit a revised application, to August 2, 2013. Mr. Robinson of SCDHEC granted additional two week extension.

August 2, 2013 Brent Pace of BPCR and James Robinson of SCDHEC discussed PSD updates. Mr. Pace requested to put project on hold for at least three weeks, in order to decide next steps forward. Mr. Robinson of SCDHEC acknowledged hold request.

September 7, 2013 After a few email exchanges between August 2, 2013 and September 7, 2013 discussing the status of revised application, Brent Pace of BPCR and James Robinson of SCDHEC agreed that Brent Pace will notify James Robinson when BPCR is close to submitting a revised application.

December 17, 2013 Brent Pace of BPCR emailed James Robinson of SCDHEC some pages of the draft revised application to review.

January 10, 2014 James Robinson of SCDHEC emailed comments on pages of draft revised application to Brent Pace of BPCR.

January 20, 2014 Brent Pace of BPCR emailed James Robinson of SCDHEC responses to comments.

January 24, 2014	Brent Pace of BPCR and James Robinson of SCDHEC discussed responses to comments on pages of draft revised application.
March 11, 2014	TRC, on behalf of BPCR, submitted a revised expedited PSD construction permit application to SCDHEC.
March 14, 2014	James Robinson of SCDHEC emailed Natasha Hazziez of EPA Region 4 an electronic copy of the revised PSD application.
March 17, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR to request additional information and clarify items in the revised application.
April 3, 2014	Brent Pace of BPCR and James Robinson of SCDHEC discussed March 17, 2014 request for additional information to clarify items in the revised application.
April 9, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC some responses to March 17, 2014 request. BPCR need to send updates and replacement pages to the revised application.
April 14, 2014	James Robinson of SCDHEC emailed Natasha Hazziez of EPA Region 4 additional information for revised PSD application.
May 8, 2014	Natasha Hazziez of EPA Region 4 and James Robinson of SCDHEC discussed BPCR emissions calculations via phone call.
May 21, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC updated information on removal of synthetic minor limits.
May 23, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC updated emissions spreadsheets.
May 30, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC updated emissions spreadsheets.
June 4, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss emissions calculations, synthetic minor limit removal, BACT limits, and other PSD items.
June 9, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC updated emissions spreadsheets.
June 11, 2014	Brent Pace of BPCR and James Robinson of SCDHEC discussed removal of synthetic minor limits and BACT limits.

June 17, 2014	Brent Pace of BPCR sent an email to James Robinson of SCDHEC discussing BACT limits, synthetic minor limits, and additional equipment needing BACT.
June 20, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss BACT short-term limits, synthetic minor/PSD avoidance limits, and other items pertaining to the revised PSD application.
June 25, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss BACT analysis.
July 2, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss BACT analysis.
July 10, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss BACT analysis.
July 16, 2014	SCDHEC personnel held conference call with Brent Pace of BPCR to discuss BACT analysis.
July 23, 2014	Brent Pace of BPCR and James Robinson of SCDHEC discussed BACT analysis.
July 29, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR a list of discussion items on the BACT analysis.
July 29, 2014	Brent Pace of BPCR sent an email to James Robinson of SCDHEC responses to BACT analysis discussion items.
August 7, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss BACT analysis.
August 12, 2014	TRC, on behalf of BPCR, submitted a second revised expedited PSD construction permit application to SCDHEC.
August 20, 2014	Brent Pace of BPCR and SCDHEC personnel discussed PSD application questions and potential effects of temporary compressors on BACT analysis.
August 27, 2014	Brent Pace of BPCR and James Robinson of SCDHEC briefly discussed modeling changes and control technology search.
August 29, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR a draft of the preliminary determination (PD) for comments.

September 5, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC comments on draft PD.
September 9, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss draft preliminary determination.
September 10, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR a draft of the statement of basis (SOB).
September 11, 2014	SCDHEC personnel held conference call with BPCR to discuss draft preliminary determination.
September 12, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC additional comments on draft PD.
September 12, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC comments on draft SOB.
September 24, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR a draft of the PSD permit.
September 25, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC comments on draft PSD permit.
September 25, 2014	SCDHEC personnel held conference call with BPCR and TRC to discuss draft PSD permit.
September 26, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR a draft of the PSD permit, SOB, and PD.
September 30, 2014	Brent Pace of BPCR emailed James Robinson of SCDHEC comments on draft PSD permit, SOB, and PD.
October 1, 2014	James Robinson of SCDHEC emailed Brent Pace of BPCR an updated draft of the PSD permit, SOB, and PD.
October 8, 2014	The BAQ placed the PSD Preliminary Determination and PSD Construction Permit No. 0420-0029-CU on public notice for a thirty-(30) day comment period by publication in <i>The Post &amp; Courier</i> newspaper in Charleston, South Carolina. All appropriate Federal and State Officials were notified.
November 7, 2014	PSD Final Determination and PSD Construction Permit No. 0420-0029-CU Issued.

November 13, 2017	A Prevention of Significant Deterioration (PSD) pre-application meeting was held with representatives from BPCR, TRC, and the South Carolina Department of Health and Environmental Control (SC DHEC), Bureau of Air Quality (BAQ).
December 14, 2017	SC DHEC received a PSD permit application from BPCR to revise PSD permit 0420-0029-CU.
December 20, 2017	Air Permitting of BAQ emailed a copy of the application to Lorinda Shepherd and Heather Ceron of the Environmental Protection Agency (EPA) and informed them that BAQ had deemed the application complete and will undergo technical review.
December 20, 2017	Air Permitting of BAQ emailed Marianne Andrews of BPCR to informing her that BAQ had deemed the application complete; the application will undergo a preliminary determination.
December 20, 2017	Air Permitting of BAQ emailed Marianne Andrews of BPCR requesting additional information regarding the material balance of carbon monoxide (CO).
December 20, 2017	Air Permitting of BAQ discussed the basis of CO Control Efficiency, via phone, with Robert VandenMeiracker of TRC.
December 20, 2017	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding CO Control Efficiency.
December 27, 2017	Air Permitting of BAQ mailed out to Catherine Collins, Federal Land Manager, a letter informing her that BAQ had deemed the application complete; the application will undergo a preliminary determination.
January 11, 2018	Air Permitting of BAQ received email correspondence from Marianne Andrews of BPCR regarding additional information for the material balance of carbon monoxide (CO).
January 11, 2018	Air Permitting of BAQ emailed Marianne Andrews of BPCR requesting additional information regarding the material balance of carbon monoxide (CO).
February 1, 2018	Air Permitting of BAQ received email correspondence from Marianne Andrews of BPCR regarding additional information for the material balance of carbon monoxide (CO).
February 14, 2018	Air Permitting of BAQ emailed Marianne Andrews of BPCR requesting

	additional information regarding the material balance of carbon monoxide (CO).
February 15, 2018	Air Permitting of BAQ discussed and requested Updated RBLC searches, via phone, with Robert VandenMeiracker of TRC.
February 19, 2018	Air Permitting of BAQ received email correspondence from Marianne Andrews of BPCR regarding additional information for the material balance of carbon monoxide (CO).
February 20, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding Updated RBLC searches.
February 26, 2018	Air Permitting of BAQ discussed and requested updated BACT Cost Analysis, via phone and email, with Robert VandenMeiracker of TRC.
March 8, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding updated BACT Cost Analysis.
March 26, 2018	Air Permitting of BAQ emailed Robert VandenMeiracker of TRC, requesting an updated application to include all previous updates, corrections, etc.
March 30, 2018	Air Permitting of BAQ received an updated application from Robert VandenMeiracker of TRC.
April 6, 2018	Air Permitting of BAQ emailed Robert VandenMeiracker of TRC, requesting clarification of the BACT Cost Analysis Tables.
April 9, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC clarifying BACT Cost Analysis Tables.
April 12, 2018	Air Permitting of BAQ emailed Robert VandenMeiracker of TRC, Marianne Andrews of BPCR, EPA, and the Federal Land Managers drafts of the Preliminary Determination (PD), Statement of Basis (SOB), and Permit.
April 19, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC with comments on the draft PD, SOB, and Permit.
April 19, 2018	Air Permitting of BAQ received email correspondence from Catherine Collins, Federal Land Manager (FLM), requesting more time to review the draft documents.

April 20 through May 1, 2018	Ongoing correspondence between Air Permitting of BAQ and Robert VandenMeiracker of TRC and Marianne Andrews of BPCR regarding the review of the draft preliminary determination by Catherine Collins, Federal Land Manager.
May 2, 2018	Air Permitting of BAQ received email correspondence from Catherine Collins, FLM, requesting that BPCR run Class I Area modeling (VISCREEN).
May 2, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding the results of the VISCREEN modeling.
May 9, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding additional VISCREEN modeling request from Catherine Collins, FLM.
May 17, 2018	Air Permitting of BAQ received email correspondence from Marianne Andrews of BPCR regarding the approval of the VISCREEN modeling by Catherine Collins, FLM.
May 21, 2018	Air Permitting of BAQ emailed Robert VandenMeiracker of TRC, and Marianne Andrews of BPCR a second draft of the Preliminary Determination (PD), Statement of Basis (SOB), and Permit.
May 21, 2018	Air Permitting of BAQ received email correspondence from Robert VandenMeiracker of TRC regarding the second draft of the Preliminary Determination (PD), Statement of Basis (SOB), and Permit.
May 25, 2018	The BAQ placed the PSD Preliminary Determination and PSD Construction Permit No. 0420-0029-CU on public notice for a thirty-(30) day comment period. All appropriate Federal and State Officials were notified.
June 27, 2018	The BAQ issued a Final Determination and Construction Permit No. 0420-0029-CU.

## 2.0 Introduction and Preliminary Determination

### A. Project Overview

BP Amoco Chemical Company – Cooper River Plant (BPCR) submitted a Prevention of Significant Deterioration (PSD) construction permit application to the South Carolina Department of Health and Environmental Control (SCDHEC), Bureau of Air Quality (BAQ), to modify the #1 and #2 Oxidation (OX) Units to remove limitations that prevent the units from operating at their unit design capacities (debottlenecking); and to make minor modifications to the #1 and #2 PTA Units to reduce operating costs. In general, these modifications will include improvements to the reaction environment, additional reaction air capacity, optimization of the recovery systems, improved Dehydration Tower (DHT) operation, improved energy recovery, removal of several emission points, addition of dense phase conveying and additional cooling tower capacity. These changes will result in increased actual hourly production and emissions rates, but will not increase maximum production rates or potential emission rates. This project is referred to as the OX Modernization/Debottleneck project.

The specific equipment revisions, additions, and removals included in the proposed project are as follows:

1. #1 OX unit

- Replacement of the four existing reactors (BR-301 A-D) with a new single more efficient reactor (BR-301)

- Replacement of the reactor overhead condenser system

- Replacement of the air compressor rotor to reduce energy consumption

- Direct injection of Paraxylene (PX) to the new reactor

- Additional reactor overhead recovery capacity by replacing equipment with an improved design

- Routing of 1<sup>st</sup> crystallizer (BD-401) vent to reactor off-gas recovery system

- Maintain power recovery in off-gas expander by lowering upstream pressure drop

- Conversion of dehydration tower (DHT) to azeotropic distillation unit

- Change DHT overhead recovery system to a two-stage system by:

- Converting existing DHT Scrubber (BT-702) to a one-stage acid scrubber
- Routing the DHT Scrubber vent to the Low Pressure Absorber (LPA) (BT-603)
- Revising the packing in the LPA

- Change High Pressure Absorber (T-401) internal packing

- Addition of dense phase conveying (conveyance of solids with less carrier gas)

- Additional capacity for filters

- Removal of the low pressure vent gas treatment (LPVGT) compressor (BC-710)
  - Removal of the solvent stripper (BT-605)
  - Removal of the residue evaporator (BM-606) and catalyst recovery unit (BD-625/631/632/BE-645)
  - Removal of the PX Stripper (BT-740)
  - Addition of a steam turbine to generate power from excess low pressure steam
  - Addition of a 82,000 gallon fixed roof NBA storage tank (size subject to change when BPCR goes through installation process)
  - Replacement of existing Emergency Generator (BM-1201) with a new one
  - Addition of a new Emergency Generator (BM-1204)
  - Withdraw solvent/water mixture from reactor overhead condenser #1
2. #1 PTA unit
- Revisions to crystallizer vent scrubber (CVS) (CM-301) to improve energy recovery
  - Addition of a 5th crystallizer (CD-300)
  - Addition of dense phase conveying
  - Replacement of dryer (CM-403B)
3. #2 OX unit
- Direct injection of PX to reactor
  - Re-rating (Modification) of air compressor for additional capacity
  - Replacement of reactor overhead condenser
  - Conversion of dehydration tower (DHT) (DT-403) to an azeotropic distillation unit
  - Modification of packing or trays in DHT (DT-403), High Pressure Absorber (HPA) (DT-111), LPA (DT-302), Dryer Scrubber (DT-301) and High Pressure Vent Gas Treatment System (HPVGTs) Scrubber (DT-1821)
  - Routing of DHT (DT-403) vent to LPA system (DT-302)
  - Addition of dense phase conveying
  - Removal of Low Pressure Vent Gas Treatment (LPVGT) System compressor (DC-304)
  - Removal of solvent stripper (DT-402) system
  - Removal of the residue evaporator (DM-403) and catalyst recovery unit (DD-412/413/414/DE-416)
  - Removal of PX Stripper (DT-404)
  - Addition of a steam turbine to generate power from excess steam
  - Addition of a 75,000 gallon fixed roof NBA storage tank (size subject to change when BPCR goes through installation process)
4. #2 PTA Unit
- Modifications to CVS (DM-601) to improve energy recovery

Modification of piping system from PTA Feed Drum (DD-500) to the Sundyne pumps

Addition of a 4th Sundyne pump

Addition of dense phase conveying

Replacement of dryer (DM-703)

5. Cooling Towers

Additional #1 Cooling Tower capacity

Additional #2 Cooling Tower capacity

The project will also include smaller items that will occur on all the units in the following general categories:

1. Additional and/or improved automation, multivariable control schemes, and on-line analyzers to increase unit reliability and improve process control.
2. Replacement of process equipment and piping that are negatively impacting maintenance costs and unit reliability.
3. Replacement of obsolete or end-of-life equipment such as piping, instruments, and computer equipment, where replacement parts are no longer available and equipment that has been determined to be too worn or corroded.
4. Replacement of exchangers and vessels to improve metallurgy, reduce corrosion, and reduce maintenance costs.

As part of this project, BPCR is removing synthetic minor PSD avoidance limits that were established in construction permits 0420-0029-CF, -CJ, -CP, and -CR for the following emission points: #1 OX DHT Scrubber, #1 and #2 OX LPA's, #1 and #2 OX HPVGTS, #2 PTA Crystallizer Vent Scrubber (CVS), #2 OX HPVGTS Heater, and the combined limit for CR#1 and CR#2 Plants. Table 1 lists the individual synthetic minor limits that will be removed. These emission points have been included in the BACT analysis.

Table 1 - Synthetic Minor Limits To Be Removed						
OP ID	CP ID(s)	Process/Equipment (Equipment ID)	Pollutant	Emission Limitation (lb/hr)	Emission Limitation (TPY)	Proposed BACT Limit (lb/hr)
03	CP & CR	#1 OX LPA (BT-603)	VOC	40	80	9.60
03	CR	#1 OX LPA (BT-603)	CO	N/A	40	14.0
03	CP & CR	#1 OX DHT Scrubber (BT-702)	VOC	60	165	N/A <sup>(1)</sup>
03	CR	#1 OX DHT Scrubber (BT-702)	CO	N/A	380	
03	CJ & CR	#1 OX HPVGTS (HPA (BT-401))	VOC	85	80	4.70
03	CJ & CR	#1 OX HPVGTS (HPA (BT-401))	CO	1452	375	72.0
05	CF <sup>(2)</sup>	#2 OX LPA (DT-302)	VOC	15.57	N/A	8.85

Table 1 - Synthetic Minor Limits To Be Removed						
OP ID	CP ID(s)	Process/Equipment (Equipment ID)	Pollutant	Emission Limitation (lb/hr)	Emission Limitation (TPY)	Proposed BACT Limit (lb/hr)
		#2 OX HPVGTS (HPA (DT-111))				3.50
05	CF <sup>(2)</sup>	#2 PTA Unit CVS (DM-601)	VOC	25.6	N/A	20.0
05	CF <sup>(2)</sup>	#2 OX Fugitives	VOC	3.5	N/A	HON LDAR
05	CF <sup>(2)</sup>	#2 OX HPVGTS Fired Heater	VOC	0.84	N/A	0.0055 lb/MM BTU
03-06	CP	Combined total for CR#1 & CR#2	VOC	N/A	1825	Replaced with individual vent limits

- (1) The #1 OX DHT Scrubber will no longer vent to the atmosphere and is being routed to the #1 OX LPA. The #1 OX LPA BACT limit accounts for the #1 OX DHT Scrubber emissions.
- (2) Construction Permit 0420-0029-CF established a total PSD avoidance limit of 49.26 lb VOC/hr for the Cooper River #2 Plant. This limit consisted of these four sources of emissions, and the following sources of emissions: Incremental increase from the Tank Farm (0.02 lb/hr) and Wastewater Fugitives (3.11 lb/hr), the Anaerobic Reactor (0.31 lb/hr), and the CO<sub>2</sub> Stripper (0.35 lb/hr). A revised PSD avoidance SM limit established through construction permit 0420-0029 will be the sum of the emissions from the Tank Farm, Wastewater Fugitives, Anaerobic Reactor, and CO<sub>2</sub> Stripper (3.79 lb/hr).

Due to emissions increases associated with this proposal, the project is subject to S.C. Regulation 61-62.5, Standard No. 7, "Prevention of Significant Deterioration (PSD)". This regulation is equivalent to the Federal Prevention of Significant Deterioration of Air Quality regulations in Title 40 Code of Federal Regulations (CFR) Section 52.21. Pursuant to these regulations, new major stationary sources and modifications to major stationary sources of air pollution must demonstrate that they will not significantly deteriorate the air quality in their region. BPCR has potential emissions of VOC and CO, which exceed the significance levels allowed in this regulation. The PSD review was conducted for VOC and CO and includes a Best Available Control Technology (BACT) determination and Ambient Air Impact Analyses.

BPCR has submitted a revision to the PSD to change the method of operation of the #1 OX Unit. The facility has three (3) overhead condensers on its #1 Ox Unit Reactor, of which the facility currently draws a solvent/water mixture from Condensers 2 and 3. This mixture is sent to the dehydration tower (DHT), equipment ID BT-701, and the low pressure absorber (LPA), equipment ID BT-603, for solvent recovery. The facility is proposing to draw from all three condensers, as this provides better solvent and catalyst recovery, and a more stable operation. This in turns provides a significant operational savings annually. The facility is also requesting to increase the CO BACT limit for #1 OX LPA (BT-603) from 4.1 lb/hr to 14.0 lb/hr, based on a 30-day rolling average.

In addition to the above-mentioned modification, the facility proposes to voluntarily decrease the CO BACT limit for the high pressure vent gas treatment system (HPVGTS) from

87.9 lb/hr to 72.0 lb/hr, based on a 30-day rolling average. This change, in effect, reduces facility wide CO emissions 6 lb/hr and 26.3 tpy.

The changes to these two CO BACT limits require revising the PSD construction permit 0420-0029-CU and the associated preliminary determination. Only the portions of these three documents affected by these changes will be revised. The documents will also have general updates due to template changes.

## **B. Regulatory Applicability**

The increased production capacity results in potential emissions that exceed the PSD significant thresholds. By virtue of the proposed increase, this project is subject to review under the following standards in S.C. Regulation 61-62 and Federal standards:

- SC Regulation 61-62.5, Standard No. 2 "Ambient Air Quality Standards"
- SC Regulation 61-62.5, Standard No. 3 "Waste Combustion and Reduction"
- SCC Regulation 61-62.5, Standard No. 4 "Emissions from Process Industries"
- SC Regulation 61-62.5, Standard No. 7 "Prevention of Significant Deterioration"
- SC Regulation 61-62.60 "South Carolina Designated Facility Plan and New Source Performance Standards"
- SC Regulation 61-62.61 "National Emission Standards for Hazardous Air Pollutants (NESHAPs)"
- S.C. Regulation 61-62.63 "NESHAPs for Source Categories"
- 40 CFR 60, Subpart A "Standards of Performance for New Stationary Sources - General Provisions"
- 40 CFR 60, Subpart Db "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units"
- 40 CFR 60, Subpart VV "Standard of Performance for Equipment Leaks of VOC in Synthetic Organic Chemical Manufacturing Industry (SOCMI) for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006"
- 40 CFR 60, Subpart VVa "Standard of Performance for Equipment Leaks of VOC in Synthetic Organic Chemical Manufacturing Industry (SOCMI) for which Construction, Reconstruction, or Modification Commenced After November 7, 2006"
- 40 CFR 60, Subpart III "Standard of Performance for VOC Emissions from SOCMI Air Oxidation Unit Processes"
- 40 CFR 60, Subpart NNN "NSPS for VOC Emissions from SOCMI Distillation Operations"
- 40 CFR 60, Subpart IIII "NSPS for Stationary Compression Ignition Internal Combustion Engines"
- 40 CFR 61, Subpart FF "National Emission Standards for Benzene Waste Operations"

- 40 CFR 63, Subpart A “General Provisions”
- 40 CFR 63, Subpart F “National Emission Standards for Organic Hazardous Air Pollutants (NESHAPs) from the SOCM”
- 40 CFR 63, Subpart G “NESHAPs From the SOCM Process Vents, Storage Vessels, Transfer Operations, and Wastewater”
- 40 CFR 63, Subpart H “NESHAPs for Equipment Leaks”
- 40 CFR 63, Subpart ZZZZ “National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines (RICE)”
- 40 CFR 63, Subpart DDDDD “NESHAPs for Industrial, Commercial, and Institutional Boilers and Process Heaters”
- 40 CFR Part 64 “Compliance Assurance Monitoring (CAM)”

## 2.1 Significant Emission Rates

As shown in Table 2, this project exceeds the significant threshold as defined under PSD for CO and VOC emissions. Emissions calculations for the modified units were based on actual-to-potential test to determine if there was a significant emissions increase.

Table 2 - PSD Applicability Analysis			
Pollutant	Controlled Emissions Increase	PSD Significant Threshold	Significant Increase?
	TPY	TPY	
PM	7.0	25	No
PM <sub>10</sub>	6.6	15	No
PM <sub>2.5</sub>	5.8	10	No
SO <sub>2</sub>	0.2	40	No
NO <sub>x</sub>	27.8	40	No
CO	618.5	100	Yes
VOC	200.3	40	Yes
CO <sub>2e</sub>	17,300	75,000	No

### 3.0 Final Determination

On May 25, 2018, the BAQ made a preliminary determination that the BP Amoco Chemical Company - Cooper River Plant may be modified if the emission limitations and conditions as outlined in the draft PSD Construction Permit 0420-0029-CU are met. This draft construction permit was included as Appendix C of the Preliminary Determination. The Statement of Basis that contains explanations of the permitting actions was included as Appendix D of the Preliminary Determination. The public comment period closed on June 23, 2018. No comments were received from the United States Environmental Protection Agency (EPA), the Federal Land Manager (FLM), BP Amoco Chemical Company - Cooper River Plant, or members of the public during the public comment period.

BAQ has made a final determination that BP Amoco Chemical Company - Cooper River's proposed project may be approved provided that the emission limitations and condition as outlined in Construction Permit No. 0420-0029-CU are met. A copy of the final issued construction permit is included as Appendix A of this Final Determination.

The final BACT determinations are summarized in Table 3.

Table 3 - Summary of BACT			
Process/Equipment	Pollutant	BACT Limit	BACT Control Method
#1 OX High Pressure Absorber	VOC	4.70 lb/hr	CTO
	CO	72.0 lb/hr	CTO
#1 OX Low Pressure Absorber	VOC	9.60 lb/hr	N/A
	CO	14.0 lb/hr	N/A
#1 OX Fugitives	VOC	HON LDAR	HON LDAR
#1 PTA Crystallizer Vents	VOC	20.0	N/A
	CO	24.0	N/A
#2 OX High Pressure Absorber	VOC	3.50	CTO
	CO	75.0	CTO
#2 OX Low Pressure Absorber	VOC	8.85	N/A
	CO	3.50	N/A
#2 OX Fugitives	VOC	HON LDAR	HON LDAR
#2 PTA Crystallizer Vents	VOC	20.0	N/A
	CO	20.0	N/A
#2 OX HPVGTS Fired Heater	VOC	0.0055 lbs/MM BTU	Good Combustion Practices, Natural Gas as sole fuel, Tune-ups
	CO	0.084 lbs/MM BTU	
#1 OX New Emergency Generators	VOC	100 hours per year non-emergency use, Tier 3 emission standards, and use of only ultra low sulfur (15 ppm) diesel fuel	N/A

## **Appendix A - Construction Permit 0420-0029-CU**



S.C. Department of Health and  
Environmental Control

## **Bureau of Air Quality PSD Construction Permit**

**BP Amoco Chemical Company-Cooper River Plant**  
**1306 Amoco Drive**  
**Wando, SC 29492**  
**Berkeley County**  
(Permit Updated 6/27/18)

In accordance with the provisions of the Pollution Control Act, Sections 48-1-50(5), 48-1-100(A), and 48-1-110(a), the 1976 Code of Laws of South Carolina, as amended, and South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards, the Bureau of Air Quality authorizes the construction of this facility and the equipment specified herein in accordance with the plans, specifications, and other information submitted in the construction permit application received on April 11, 2013, as amended. All official correspondence, plans, permit applications, and written statements are an integral part of the permit. Any false information or misrepresentation in the application for a construction permit may be grounds for permit revocation.

The construction and subsequent operation of this facility is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

**Permit Number: 0420-0029-CU**  
**Issue Date: November 7, 2014**

A handwritten signature in blue ink that reads "Steve McCaslin".

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**Steve McCaslin, P. E., Director**  
**Air Permitting Division**  
**Bureau of Air Quality**

**BP Amoco Chemical Company - Cooper River Plant**

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(Permit Updated 6/27/18)

<b>RECORD OF REVISIONS</b>	
<b>Date</b>	<b>Description of Changes</b>
06-27-2018	Updated project description, increased BACT limit for #1 OX Low Pressure Absorber (ID BT-603), decreased BACT limit for #1 OX High Pressure Absorber (ID BT-401), and general template updates.

# BP Amoco Chemical Company - Cooper River Plant

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(Permit Updated 6/27/18)

## A. PROJECT DESCRIPTION

Permission is hereby granted to modify the #1 and #2 Oxidation (OX) Units to remove limitations that prevent the units from operating at their design capacities (debottlenecking); and to make minor modifications to the #1 and #2 Purified Terephthalic Acid (PTA) Units to reduce operating costs. In general, these modifications will include improvements to the reaction environment, additional reaction air capacity, optimization of the recovery systems, improved Dehydration Tower (DHT) operation, improved energy recovery, removal of several emission points, addition of dense phase conveying and additional cooling tower capacity. These changes will result in increased actual hourly production and emissions rates, but will not increase maximum production rates or potential emission rates. This project is referred to as the OX Modernization/Debottleneck project.

The specific equipment revisions, additions, and removals included in the proposed project are as follows:

### 1. #1 OX unit

- Replacement of the four existing reactors (BR-301 A-D) with a new single more efficient reactor (BR-301)
- Replacement of the reactor overhead condenser system
- Replacement of the air compressor rotor to reduce energy consumption
- Direct injection of Paraxylene (PX) to the new reactor
- Additional reactor overhead recovery capacity by replacing equipment with an improved design
- Routing of 1<sup>st</sup> crystallizer (BD-401) vent to reactor off-gas recovery system
- Maintain power recovery in off-gas expander by lowering upstream pressure drop
- Conversion of dehydration tower (DHT) to azeotropic distillation unit
- Change DHT overhead recovery system to a two-stage system by:
  - Converting existing DHT Scrubber (BT-702) to a one-stage acid scrubber
  - Routing the DHT Scrubber vent to the Low Pressure Absorber (LPA) (BT-603)
  - Revising the packing in the LPA
- Change High Pressure Absorber (T-401) internal packing
- Addition of dense phase conveying (conveyance of solids with less carrier gas)
- Additional capacity for filters
- Removal of the low pressure vent gas treatment (LPVGT) compressor (BC-710)
- Removal of the solvent stripper (BT-605)
- Removal of the residue evaporator (BM-606) and catalyst recovery unit (BD-625/631/632/BE-645)
- Removal of the PX Stripper (BT-740)
- Addition of a steam turbine to generate power from excess low pressure steam
- Addition of a fixed roof NBA storage tank,
- New replacement of existing Emergency Generator (BM-1201)
- Addition of a new Emergency Generator (BM-1204)
- Withdraw solvent/water mixture from reactor overhead condenser #1

### 2. #1 PTA unit

- Revisions to crystallizer vent scrubber (CM-301) to improve energy recovery
- Addition of a 5th crystallizer (CD-300)
- Addition of dense phase conveying
- Replacement of dryer (CM-403B)

# BP Amoco Chemical Company - Cooper River Plant

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## A. PROJECT DESCRIPTION

### 3. #2 OX unit

- Direct injection of PX to reactor
- Re-rating (Modification) of air compressor for additional capacity
- Replacement of reactor overhead condenser
- Conversion of dehydration tower (DHT) (DT-403) to an azeotropic distillation unit
- Modification of packing or trays in DHT (DT-403), High Pressure Absorber (HPA) (DT-111), LPA (DT-302), Dryer Scrubber (DT-301) and High Pressure Vent Gas Treatment System (HPVGTS) Scrubber (DT-1821)
- Routing of DHT (DT-403) vent to LPA system (DT-302)
- Addition of dense phase conveying
- Removal of Low Pressure Vent Gas Treatment (LPVGT) System compressor (DC-304)
- Removal of solvent stripper (DT-402) system
- Removal of the residue evaporator (DM-403) and catalyst recovery unit (DD-412/413/414/DE-416)
- Removal of PX Stripper (DT-404)
- Addition of a steam turbine to generate power from excess steam
- Addition of a fixed roof NBA storage tank,

### 4. #2 PTA Unit

- Modifications to crystallizer vent scrubber (DM-601) to improve energy recovery
- Modification of piping system from PTA Feed Drum (DD-500) to the Sundyne pumps
- Addition of a 4th Sundyne pump
- Addition of dense phase conveying
- Replacement of dryer (DM-703)

### 5. Cooling Towers

- Additional #1 Cooling Tower capacity
- Additional #2 Cooling Tower capacity

The project will also include smaller items that will occur on all the units in the following general categories:

1. Additional and/or improved automation, multivariable control schemes, and on-line analyzers to increase unit reliability and improve process control.
2. Replacement of process equipment and piping that are negatively impacting maintenance costs and unit reliability.
3. Replacement of obsolete or end-of-life equipment such as piping, instruments, and computer equipment, where replacement parts are no longer available and equipment that has been determined to be too worn or corroded.
4. Replacement of exchangers and vessels to improve metallurgy, reduce corrosion, and reduce maintenance costs.

As part of this project, BP Amoco – Cooper River Plant (BPCR) is removing synthetic minor PSD avoidance limits that were established in construction permits 0560-0029-CF, -CJ, -CP, and -CR for the following emission points: #1 OX DHT Scrubber, #1 and #2 OX LPA's, #1 and #2 OX HPVGTS, #2 PTA Crystallizer Vent Scrubber, #2 OX HPVGTS Heater, and the combined limit for CR#1 and CR#2 Plants. The table below lists the individual synthetic minor limits that will be removed. These emission points have been included in the BACT analysis.

**BP Amoco Chemical Company - Cooper River Plant**

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**A. PROJECT DESCRIPTION**

<b>Synthetic Minor Limits To Be Removed</b>						
<b>OP ID</b>	<b>CP ID(s)</b>	<b>Process/Equipment (Equipment ID)</b>	<b>Pollutant</b>	<b>Emission Limitation (lb/hr)</b>	<b>Emission Limitation (TPY)</b>	<b>Proposed BACT Limit (lb/hr)</b>
03	CP & CR	#1 OX LPA (BT-603)	VOC	40	80	9.6
03	CR	#1 OX LPA (BT-603)	CO	N/A	40	14.0
03	CP & CR	#1 OX DHT Scrubber (BT-702)	VOC	60	165	N/A <sup>(1)</sup>
03	CR	#1 OX DHT Scrubber (BT-702)	CO	N/A	380	
03	CJ & CR	#1 OX HPVGTS (HPA (BT-401))	VOC	85	80	4.7
03	CJ & CR	#1 OX HPVGTS (HPA (BT-401))	CO	1452	375	72.0
05	CF <sup>(2)</sup>	#2 OX LPA (DT-302)	VOC	15.57	N/A	8.85
		#2 OX HPVGTS (HPA (DT-111))				3.5
05	CF <sup>(2)</sup>	#2 PTA Unit Crystallizer Vent Scrubber (DM-601)	VOC	25.6	N/A	20.0
05	CF <sup>(2)</sup>	#2 OX Fugitives	VOC	3.5	N/A	HON LDAR
05	CF <sup>(2)</sup>	#2 OX HPVGTS Fired Heater	VOC	0.84	N/A	0.0055 lb/MM BTU
03-06	CP	Combined total for CR#1 & CR#2	VOC	N/A	1825	Replaced with individual vent limits

(1) The #1 OX DHT Scrubber will no longer vent to the atmosphere and is being routed to the #1 OX LPA. The #1 OX LPA BACT limit accounts for the #1 OX DHT Scrubber emissions.

(2) Construction Permit 0420-0029-CF established a total PSD avoidance limit of 49.26 lb VOC/hr for the Cooper River #2 Plant. This limit consisted of these four sources of emissions, and the following sources of emissions: Incremental increase from the Tank Farm (0.02 lb/hr) and Wastewater Fugitives (3.11 lb/hr), the Anaerobic Reactor (0.31 lb/hr), and the CO<sub>2</sub> Stripper (0.35 lb/hr). A revised PSD avoidance SM limit established through construction permit 0420-0029 will be the sum of the emissions from the Tank Farm, Wastewater Fugitives, Anaerobic Reactor, and CO<sub>2</sub> Stripper (3.79 lb/hr).

BPCR has submitted a revision to the PSD to change the method of operation of the #1 OX Unit. The facility has three (3) overhead condensers on its #1 OX Unit Reactor, of which the facility currently draws a solvent/water mixture from Condensers 2 and 3. This mixture is sent to the dehydration tower (DHT), equipment ID BT-701, and the low pressure absorber (LPA), equipment ID BT-603, for solvent recovery. The facility is proposing to draw from all three condensers, as this provides better solvent and catalyst recovery, and a more stable operation. This in turns provides a significant operational savings annually. The facility is also requesting to increase the CO BACT limit for #1 OX LPA (BT-603) from 4.1 lb/hr to 14.0 lb/hr, based on a 30-day rolling average.

In addition to the above-mentioned modification, the facility proposes to voluntarily decrease the CO BACT limit for the high pressure vent gas treatment system (HPVGTS) from 87.9 lb/hr to 72.0 lb/hr, based on a 30-day rolling average. This change, in effect, reduces facility wide CO emissions 6 lb/hr and 26.3 tpy.

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**B.1 EQUIPMENT FOR #1 OXIDATION UNIT (TV PERMIT UNIT ID 03)**

<b>Equipment ID</b>	<b>Equipment Description</b>	<b>Control Device ID</b>	<b>Emission Point ID</b>
BR-301	Reactor with Overhead Condensers*	#1 HPVGTS	O-2/10/15
BD-200	PX Feed Drum*	None	None
BC-906	60# Steam Generator*	None	None
BT-700	Liquid-Liquid Extraction Tower*	None	None
BF-1405	NBA Storage Tank* (Specific Tank Size TBD)	None	None
BT-750	Entrainer Recovery Tower* (ERT)	None	O-3
BM-1201	400 kW Emergency Generator*	None	O-17
BM-1204	500 kW Emergency Generator*	None	O-24
BT-701	Dehydration Tower (DHT)	None	O-3
BD-401	1st Crystallizer	None	None
BT-603	Low Pressure Absorber (LPA)	None	O-3
BC-104	Power Recovery Expander	None	O-2/10/15
BT-400	PX Scrubber	None	None
BT-401	High Pressure Absorber (HPA)	#1 HPVGTS	O-2/10/15
BD-604	Azeo Storage Drum	None	None
BD-204	Feed Mix DrumFeed Mix Drum	None	None
BD-503	Filter Vacuum Sep. Drum	None	None
BM-1101A/B	Off-Gas Dryer	None	O-2/10/15
BM-1101C/D	Off-Gas Dryer	None	O-2/10/15

\* These equipment are new. All other equipment listed is being modified.

**B.2 EQUIPMENT FOR #1 PURIFIED TEREPHTHALIC ACID UNIT (TV PERMIT UNIT ID 04)**

<b>Equipment ID</b>	<b>Equipment Description</b>	<b>Control Device ID</b>	<b>Emission Point ID</b>
CD-300	Crystallizer	CM-301	P-2
CM-403B	Dryer	None	P-3B

**B.3 EQUIPMENT FOR #2 OXIDATION UNIT (TV PERMIT UNIT ID 05)**

<b>Equipment ID</b>	<b>Equipment Description</b>	<b>Control Device ID</b>	<b>Emission Point ID</b>
DT-400	Liquid-Liquid Extraction Tower*	None	None
DF-460	NBA Storage Tank* (Specific Tank Size TBD)	None	None
DT-450	Entrainer Recovery Tower* (ERT)	None	O2-1
DC-906	60# Steam Generator*	None	None

# BP Amoco Chemical Company - Cooper River Plant

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## B.3 EQUIPMENT FOR #2 OXIDATION UNIT (TV PERMIT UNIT ID 05)

Equipment ID	Equipment Description	Control Device ID	Emission Point ID
DT-403	Dehydration Tower (DHT)	None	O2-1
DT-302	Low Pressure Absorber (LPA)	None	O2-1
DC-104	Power Recovery Expander	None	O2-3/4
DD-402	Azeo Storage Drum	None	None

\* These equipment are new. All other equipment listed is being modified.

## B.4. CONTROL DEVICES

Control Device ID	Control Device Description	Pollutant(s) Controlled
#1 HPVGTS	#1 Oxidation Unit High Pressure Vent Gas Treatment System (Catalytic Oxidizer (CTO) (BR-1814) followed by a Scrubber)	VOC, HAP, CO
#2 HPVGTS	#2 Oxidation Unit High Pressure Vent Gas Treatment System (CTO (DR-1814) followed by a Scrubber)	VOC, HAP, CO
CM-301	Venturi Scrubber; called #1 Crystallizer Vent Scrubber (CVS)	PM, PM <sub>10</sub> , PM <sub>2.5</sub>
DM-601	Venturi Scrubber; called #2 Crystallizer Vent Scrubber (CVS)	PM, PM <sub>10</sub> , PM <sub>2.5</sub>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.1	<p><b>Equipment ID/Control Device ID: All</b></p> <p>(S.C. Regulation 61-62.1, Section II.J.1.g) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least 5 years from the date the record was generated and shall be made available to a Department representative upon request.</p>
C.2	<p><b>Equipment ID/Control Device ID: All</b></p> <p>The owner/operator shall inspect, calibrate, adjust, and maintain continuous monitoring systems, monitoring devices, and gauges in accordance with manufacturer's specifications or good engineering practices. The owner/operator shall maintain on file all measurements including continuous monitoring system or monitoring device performance measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device</p>

**BP Amoco Chemical Company - Cooper River Plant**

**0420-0029-CU**

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
	calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required in a permanent form suitable for inspection by Department personnel.
C.3	<p><b>Equipment ID/Control Device ID:</b> All</p> <p>All gauges shall be readily accessible and easily read by operating personnel and Department personnel (i.e. on ground level or easily accessible roof level). Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Exceedance of operational range shall not be considered a violation of an emission limit of this permit, unless the exceedance is also accompanied by other information demonstrating that a violation of an emission limit has taken place. Reports of these incidences shall be submitted semiannually. If no incidences occurred during the reporting period then a letter shall be submitted to indicate such.</p> <p>Any alternative method for monitoring control device performance must be preapproved by the Department and shall be incorporated into the permit as set forth in S.C. Regulation 61-62.70.7.</p>
C.4	<p><b>Equipment/Control Device ID:</b> BR-1814 (#1 CTO), DR-1814 (#2 CTO), BT-603 (#1 LPA), DT-302 (#2 LPA), CM-301 (#1 CVS), DM-601 (#2 CVS)</p> <p>For any source test required under an applicable standard or permit condition, the owner, operator, or representative shall comply with S.C. Regulation 61-62.1, Section IV - Source Tests.</p> <p>Unless approved otherwise by the Department, the owner, operator, or representative shall ensure that source tests are conducted while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested. Some sources may have to spike fuels or raw materials to avoid being subjected to a more restrictive feed or process rate. Any source test performed at a production rate less than the rated capacity may result in permit limits on emission rates, including limits on production if necessary.</p> <p>The owner or operator shall comply with any limits that result from conducting a source test at less than rated capacity. A copy of the most recent Department issued source test summary letter, whether it imposes a limit or not, shall be maintained with the operating permit, for each source that is required to conduct a source test.</p> <p>Site-specific test plans and amendments, notifications, and source test reports shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quality.</p>
C.5	<p><b>Equipment/Control Device ID:</b> BR-1814 (#1 CTO), DR-1814 (#2 CTO)</p>

**BP Amoco Chemical Company - Cooper River Plant**

**0420-0029-CU**

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

Condition Number	Conditions						
	<p>(S.C. Regulation 61-62.5, Standard No. 3, Section IX) This equipment shall be limited to the maximum allowable emissions of PM of 0.5lb/10<sup>6</sup> Btu and an opacity of 20%, each.</p> <p>The owner/operator shall perform a visual inspection on a weekly basis. Visual inspection means a qualitative observation of opacity during daylight hours where the inspector records results in a log, noting color, duration, density (heavy or light), cause and correction action taken for any abnormal emissions. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. Logs shall be kept to record all visual inspections, including cause and corrective action taken for any abnormal emissions and visual inspections from date of recording. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken.</p>						
C.6	<p><b>Equipment/Control Device ID:</b> All</p> <p>(S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions shall be limited to the rate specified by use of the following equations:</p> <p style="padding-left: 40px;">For process weight rates less than or equal to 30 tons per hour  <math display="block">E = (F) 4.10P^{0.67} \text{ and}</math> For process weight rates greater than 30 tons per hour  <math display="block">E = (F) 55.0P^{0.11} - 40</math> Where E = the allowable emission rate in pounds per hour  P = process weight rate in tons per hour  F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4</p> <p>For the purposes of compliance with this condition, the process boundaries are defined as follows:</p> <table border="1" data-bbox="634 1360 1135 1503"> <thead> <tr> <th>Unit IDs</th><th>Process Weight Rate (ton/hr)</th></tr> </thead> <tbody> <tr> <td>03-04, combined</td><td>158.93</td></tr> <tr> <td>05-06, combined</td><td>126.57</td></tr> </tbody> </table> <p>The owner/operator shall continue to operate and maintain pressure drop gauge(s) on each module of the baghouse. Pressure drop readings shall be recorded daily during source operation. Operation and maintenance checks shall be made on at least a weekly basis for baghouse cleaning systems, dust collection hoppers, and conveying systems for proper operation. The baghouse shall be in place and operational whenever processes controlled by it are running, except during periods of baghouse malfunction or mechanical failure.</p> <p>Operational ranges for the monitored parameters shall be reviewed and re-established (if</p>	Unit IDs	Process Weight Rate (ton/hr)	03-04, combined	158.93	05-06, combined	126.57
Unit IDs	Process Weight Rate (ton/hr)						
03-04, combined	158.93						
05-06, combined	126.57						

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

Condition Number	Conditions
	appropriate) to ensure proper operation of the pollution control equipment. These operational ranges for the monitored parameters shall be derived from stack test data, vendor certification, and/or operational history and visual inspections, which demonstrate the proper operation of the equipment. If ranges need to be re-established, these ranges and supporting documentation (certification from manufacturer, stack test results, 30 days of normal readings, opacity readings, etc.) shall be submitted to the Director of Engineering Services within 180 days of startup.
C.7	<p><b>Equipment/Control Device ID:</b> Unit ID 03 (#1 OX Unit), Unit ID 04 (#1 PTA Unit), Unit ID 05 (#2 OX Unit), Unit ID 06 (#1 PTA Unit)</p> <p>(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these source(s) (including fugitive emissions) shall not exhibit an opacity greater than 20%, each.</p> <p>The owner/operator shall perform a visual inspection on a weekly basis. Visual inspection means a qualitative observation of opacity during daylight hours where the inspector records results in a log, noting color, duration, density (heavy or light), cause and correction action taken for any abnormal emissions. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. Logs shall be kept to record all visual inspections, including cause and corrective action taken for any abnormal emissions and visual inspections from date of recording. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken.</p>
C.8	<p><b>Equipment/Control Device ID:</b> BR-1814 (#1 CTO), DR-1814 (#2 CTO)</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, BR-1814 shall be limited to 4.70 lb/hr and DR-1814 shall be limited to 3.50 lb/hr of VOC emissions, each, based on a 3-hour block average.</p> <p>In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, BR-1814 shall be limited to 72.0 lb/hr and DR-1814 shall be limited to 75.0 lb/hr of CO emissions, each, based on a 30-day rolling average.</p> <p><b>Testing:</b> An initial source test for VOC and CO emissions, for each CTO, shall be conducted within 180 days after startup, and every three years thereafter. If the catalyst is replaced in a CTO, a new source test schedule shall be required as follows: A source test for VOC and CO emissions shall be conducted within 90 days after changing the catalyst in a CTO, and every three years thereafter. The source test shall be used to show compliance with the Standard No. 7 BACT limits, verify emissions, and verify monitoring parameters. The owner or operator shall operate the source(s) within the parameter(s) established during the most recent satisfactory source tests. A copy of the most recent</p>

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

Condition Number	Conditions
	<p>Department issued source test summary letter(s) that established the parameter(s) shall be maintained with the construction permit.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> The owner or operator shall monitor the inlet and outlet temperature of each CTO, while processes venting to the CTO are in operation. These parameters shall be monitored continuously with a daily average, which means that at least one data point shall be measured every 15-minute period, within a 24-hour block period (midnight to midnight), and shall be averaged together for a daily reading. The parameters used to demonstrate compliance shall be the daily average inlet temperature and the daily average delta temperature of the CTO. Records of hourly block averages of monitored parameters shall be maintained on site for a period of at least 5 years. Records of excursions of monitored parameters shall be submitted semi-annually. If no excursions occurred during the reporting period then a letter shall be submitted to the Department indicating such. An excursion shall be deemed to have occurred if either of the following are met:</p> <ul style="list-style-type: none"> <li>▪ The daily average for a parameter is outside the approved monitoring range.</li> </ul> <p>The number of valid 15-minute monitoring periods for a given parameter is less than 75 percent of the number of process operating periods in a 24-hour day.</p>
C.9	<p><b>Equipment/Control Device ID:</b> BT-603 (#1 LPA), DT-302 (#2 LPA)</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, BT-603 shall be limited to 9.60 lb/hr and DT-302 shall be limited to 8.85 lb/hr of VOC emissions, each, based on a 3-hour block average.</p> <p>In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, BT-603 shall be limited to 14.0 lb/hr and DT-302 shall be limited to 3.50 lb/hr of CO emissions, each, based on a 30-day rolling average.</p> <p><b>Testing:</b> An initial source test for VOC and CO emissions, for each LPA, shall be conducted within 180 days after startup, and every three years thereafter. The source test shall be used to show compliance with the Standard No. 7 BACT limits, verify emissions, and verify monitoring parameters. The owner or operator shall operate the source(s) within the parameter(s) established during the most recent satisfactory source tests. A copy of the most recent Department issued source test summary letter(s) that established the parameter(s) shall be maintained with the construction permit.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> The owner or operator shall monitor the top liquid flow rate and top temperature of each LPA, while processes venting to the LPA are in operation. These parameters shall be monitored continuously with a daily average, which means that at least one data point shall be measured every 15-minute period, within a 24-hour block period (midnight to midnight), and shall be averaged together for a daily reading. Records of hourly block averages of</p>

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

Condition Number	Conditions
	<p>monitored parameters shall be maintained on site for a period of at least 5 years. Records of excursions of monitored parameters shall be submitted semi-annually. If no excursions occurred during the reporting period then a letter shall be submitted to the Department indicating such. An excursion shall be deemed to have occurred if either of the following are met:</p> <ul style="list-style-type: none"> <li>▪ The daily average for a parameter is outside the approved monitoring range.</li> <li>▪ The number of valid 15-minute monitoring periods for a given parameter is less than 75 percent of the number of process operating periods in a 24-hour day.</li> </ul> <p>The owner or operator shall calculate and maintain hourly CO emissions. Hourly CO emissions shall be calculated on a 30-day rolling average. Reports of the calculated values shall be submitted semiannually.</p> <p>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be included in the initial report. Subsequent submittals of the algorithm are required within 30 days of the change if the algorithm or basis for emissions is modified or the Department requests additional information.</p>
C.10	<p><b>Equipment/Control Device ID:</b> CM-301 (#1 CVS), DM-601 (#2 CVS)</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, CM-301 and DM-601 are limited to 20.0 lb/hr VOC emissions, each, based on a 3-hour block average.</p> <p>In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, CM-301 shall be limited to 24.0 lb/hr and DM-601 shall be limited to 20.0 lb/hr of CO emissions, based on a 30-day rolling average.</p> <p><b>Testing:</b> An initial source test for VOC and CO emissions, for each CVS, shall be conducted within 180 days after startup, and every three years thereafter. The source test shall be used to show compliance with the Standard No. 7 BACT limits and verify emissions.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> The owner or operator shall calculate and maintain hourly VOC and CO emissions. Hourly VOC emissions shall be calculated on a 3-hour block average, and hourly CO emissions shall be calculated on a 30-day rolling average. Reports of the calculated values shall be submitted semiannually.</p> <p>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be included in the initial report. Subsequent submittals of the algorithm are required within 30 days of the change if the algorithm or basis for emissions is modified or the Department requests additional information.</p>

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
C.11	<p><b>Equipment/Control Device ID:</b> Unit ID 03 (#1 OX Unit), Unit ID 05 (#2 OX Unit)</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, all fugitive VOC emissions from the #1 and #2 Oxidation Units shall be required to comply with the HON LDAR program (40 CFR 63 Subpart H).</p> <p><b>Testing:</b> Testing shall be performed as per 40 CFR 63.180.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> Monitoring, recordkeeping, and reporting shall be performed in accordance with 40 CFR 63.160 through 60.182. All VOCs from these processes shall be treated as Hazardous Air Pollutants (HAPs) for determining compliance.</p>
C.12	<p><b>Equipment/Control Device ID:</b> DB-1813 (#2 OX HPVGTS Fired Heater)</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, the #2 OX HPVGTS Fired Heater shall be limited to 0.0055 lb/MM BTU for VOCs and 0.084 lb/MM BTU for CO, each based on a 3-hour block average.</p> <p><b>Testing:</b> None required.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> This source is permitted to burn only natural gas as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Department. Natural gas fuel usage shall be monitored and recorded on a monthly basis. Records of natural gas usage shall be submitted semiannually.</p> <p>The owner or operator shall develop a tune-up plan and perform tune-ups on this source, once every 13 months from the date of startup. The tune-up plan shall be developed in accordance with manufacturer's specifications or with good engineering practices. Records of tune-ups shall be submitted semiannually. The tune-up plan shall only be included in the initial report. Subsequent submittals of the tune-up plan are required within 30 days of the change if the plan is modified or the Department requests additional information.</p> <p>The owner or operator shall implement good combustion practice(s) on this source. Good combustion practice is defined as maintaining proper air/fuel mixture in the combustion zone by holding excess oxygen between 3.5 and 12%. Percent excess oxygen shall be monitored continuously with a daily average, which means that at least one data point shall be measured every 15-minute period, within a 24-hour block period (midnight to midnight), and shall be averaged together for a daily reading. Records of hourly block averages of monitored parameters shall be maintained on site for a period of at least 5 years. Records of excursions of monitored parameters shall be submitted semi-annually. If no excursions occurred during the reporting period then a letter shall be submitted to the Department indicating such. An excursion shall be deemed to have occurred if either of the</p>

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

Condition Number	Conditions
	<p>following are met:</p> <ul style="list-style-type: none"> <li>The daily average for a parameter is outside the approved monitoring range.</li> </ul> <p>The number of valid 15-minute monitoring periods for a given parameter is less than 75 percent of the number of process operating periods in a 24-hour day.</p>
C.13	<p><b>Equipment/Control Device ID:</b> BM-1201, BM-1204</p> <p><b>Limits/Standards:</b> In accordance with Standard No. 7 – Prevention of Significant Deterioration and based on BACT analysis, these sources shall meet Tier 3 emission standards of 40 CFR 60 Subpart IIII, shall be limited to operating no more than 100 hours per year on a non-emergency basis, and shall burn only ultra low sulfur diesel as fuel.</p> <p><b>Testing:</b> None required.</p> <p><b>Monitoring/Record Keeping/Reporting/Other:</b> The owner or operator shall record the actual operating hours of each generator on a monthly basis. Reports of the recorded hours of operation shall be submitted semiannually.</p> <p>These sources are permitted to burn only ultra low diesel as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Department. Fuel oil sulfur content shall be less than or equal to 0.0015 percent by weight. Fuel oil supplier certification shall be obtained for each batch of oil received and stored on site. Reports of the recorded sulfur content shall be submitted semiannually.</p>
C.14	<p><b>Equipment/Control Device ID:</b> Unit ID 03 (#1 OX Unit), Unit ID 05 (#2 OX Unit)</p> <p>(40 CFR 60, Subparts A and VVa) These units are subject to the requirements of 40 CFR 60, Subpart VVa. However, since these units are subject to the HON LDAR program under 40 CFR 63 Subpart H, they are required to comply only with the provisions of 40 CFR 63 Subpart H, per §63.160(b)(1).</p>
C.15	<p><b>Equipment/Control Device ID:</b> BR-301 (#1 OX Reactor), DR-106 A/B (#2 OX Reactors)</p> <p>(40 CFR 60, Subparts A and III) These sources are subject to the requirements of 40 CFR 60, Subpart III. However, since these sources are or will be Group 2 HON process vents, they are required to comply only with the provisions of 40 CFR 63 Subpart G, per §63.110(d)(2)(ii).</p>
C.16	<p><b>Equipment/Control Device ID:</b> BT-701 (#1 DHT), DT-403 (#2 DHT), BT-750 (#1 ERT), DT-450 (#2 ERT)</p> <p>(40 CFR 60, Subparts A and NNN) These sources are subject to the requirements of 40 CFR 60, Subpart NNN. However, since these sources will be Group 2 HON process vents, they are required to comply only with the provisions of 40 CFR 63 Subpart G, per §63.110(d)(5)(ii).</p>

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**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
C.17	Prior to start up of equipment as allowed under this PSD construction permit, the facility shall continue to comply with the current established synthetic minor limitations as listed in the project description section. The facility shall notify the Department 15 days after completion of a project that would result in a synthetic minor limit no longer being applicable.

**D. NESHAP PERIODIC REPORTING SCHEDULE SUMMARY**

<b>NESHAP Part</b>	<b>NESHAP Subpart</b>	<b>Compliance Monitoring Report Submittal Frequency</b>	<b>Reporting Period</b>	<b>Report Due Date</b>
63	F & G	Semi-Annual (Periodic Report)	January 1 – June 30 July 1 – December 31	No later than 60 calendar days after the end of each 6-month period
63	H	Semi-Annual	January 1 – June 30 July 1 – December 31	No later than 60 days after the end of each reporting per
63	ZZZZ (Emergency Engines)	N/A	N/A	N/A

1. This table summarizes only the periodic compliance reporting schedule. Additional reports may be required. See specific NESHAP Subpart for additional reporting requirements and associated schedule.
2. This reporting schedule does not supersede any other reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, and/or Title V. The MACT reporting schedule may be adjusted to coincide with the Title V reporting schedule with prior approval from the Department in accordance with 40 CFR 63.10(a)(5). This request may be made 1 year after the compliance date for the associated MACT standard.

**E. NESHAP – CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
E.1	All NESHAP notifications and reports shall be sent to the Manager of the Air Toxics Section, South Carolina Department of Health and Environmental Control - Bureau of Air Quality.
E.2	All NESHAP notifications and the cover letter to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) at the following address or electronically as required by the specific subpart:  <b>US EPA, Region 4 Air, Pesticides and Toxics Management Division</b>

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**E. NESHAP - CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
	<b>61 Forsyth Street SW Atlanta, GA 30303</b>
E.3	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and F, National Emission Standards For Organic Hazardous Air Pollutants From The Synthetic Organic Chemical Manufacturing Industry. Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted.
E.4	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and G, National Emission Standards For Organic Hazardous Air Pollutants From The Synthetic Organic Chemical Manufacturing Industry For Process Vents, Storage Vessels, Transfer Operations, And Wastewater. Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted.
E.5	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and H, National Emission Standards For Organic Hazardous Air Pollutants For Equipment Leaks. Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted.
E.6	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and ZZZZ, National Emission Standards For Organic Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines (RICE). Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted.

**F. AMBIENT AIR STANDARDS REQUIREMENTS**

<b>Condition Number</b>	<b>Conditions</b>
F.1	Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in this demonstration may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission rates, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of

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**F. AMBIENT AIR STANDARDS REQUIREMENTS**

<b>Condition Number</b>	<b>Conditions</b>
	<p>a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment - Emission Rates for Ambient Air Standards of this permit. Higher emission rates may be administratively incorporated into Attachment - Emission Rates for Ambient Air Standards of this permit provided a demonstration using these higher emission rates shows the attainment and maintenance of any state or federal ambient air quality standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded.</p> <p>The owner/operator shall maintain this facility at or below the emission rates as listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations of this permit. Should the facility wish to increase the emission rates listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations in the body of this permit, it may do so by the administrative process specified above. This is a State Only enforceable requirement.</p>

**G. PERIODIC REPORTING SCHEDULE**

<b>Compliance Monitoring Report Submittal Frequency</b>	<b>Reporting Period (Begins on the startup date of the source)</b>	<b>Report Due Date</b>
Quarterly	January-March April-June July-September October-December	April 30 July 30 October 30 January 30
Semiannual	January-June April-September July-December October-March	July 30 October 30 January 30 April 30
Annual	January-December April-March July-June October-September	January 30 April 30 July 30 October 30

Note: This reporting schedule does not supersede any federal reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, and 40 CFR Part 63. All federal reports must meet the reporting time frames specified in the federal standard unless the Department or EPA approves a change.

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**H. REPORTING CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
H.1	Reporting required in this permit, shall be submitted in a timely manner as directed in the Periodic Reporting Schedule of this permit.
H.2	<p>All reports and notifications required under this permit shall be submitted to the person indicated in the specific condition at the following address:</p> <p align="center"><b>2600 Bull Street</b> <b>Columbia, SC 29201</b></p> <p>The contact information for the local Environmental Affairs Regional office can be found at: <b><a href="http://www.scdhec.gov">http://www.scdhec.gov</a></b></p>
H.3	The owner/operator shall submit written notification to the Director of Air Permitting of the date construction is commenced, postmarked within 30 days after such date.
H.4	Unless elsewhere specified within this permit, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality.
H.5	<p>(S.C. Regulation 61-62.1, Section II.J) For sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the Department's local Environmental Affairs Regional office within 24 hours after the beginning of the occurrence.</p> <p>The owner/operator shall also submit a written report within 30 days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality and shall include, at a minimum, the following:</p> <ol style="list-style-type: none"><li>1. The identity of the stack and/or emission point where the excess emissions occurred;</li><li>2. The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions;</li><li>3. The time and duration of excess emissions;</li><li>4. The identity of the equipment causing the excess emissions;</li><li>5. The nature and cause of such excess emissions;</li><li>6. The steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunction;</li><li>7. The steps taken to limit the excess emissions; and,</li><li>8. Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions.</li></ol>

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**I. PERMIT EXPIRATION AND EXTENSION**

<b>Condition Number</b>	<b>Conditions</b>
I.1	(S.C. Regulation 61-62.1, Section II.A.4) Approval to construct shall become invalid if construction: a. is not commenced within 18 months after receipt of such approval; b. is discontinued for a period of 18 months or more; or c. is not completed within a reasonable time as deemed by the Department. The Department may extend the construction permit for an additional 18-month period upon a satisfactory showing that an extension is justified. This request must be made prior to the permit expiration.
I.2	This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

**J. PERMIT TO OPERATE**

<b>Condition Number</b>	<b>Conditions</b>
J.1	(S.C. Regulation 61-62.1 Section II.F.2) The owner/operator or professional engineer in charge of the project shall certify that, to the best of his/her knowledge and belief and as a result of periodic observation during construction, the construction under application has been completed in accordance with the specifications agreed upon in the construction permit issued by the Department.
J.2	If construction is certified as provided in S.C. Regulation 61-62.1 Section II.F.2, the owner or operator, may operate the source in compliance with the terms and conditions of the construction permit until the operating permit is issued by the Department.
J.3	If construction is not built as specified in the permit application and associated construction permit(s), the owner/operator must submit to the Department a complete description of modifications that are at variance with the documentation of the construction permitting determination prior to commencing operation.  Construction variances that would trigger additional requirements that have not been addressed prior to start of operation shall be considered construction without a permit.
J.4	(S.C. Regulations 61-62.1 Section II.F.3 and 61-62.70.7) The owner or operator shall submit a written request to the Director of Air Permitting for a new or revised operating permit to cover any new or altered source postmarked within 15 days after the actual date of initial startup unless a more stringent time frame is required by regulation. The request should be made using the appropriate Title V modification form.

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**K. GENERAL CONDITIONS**

<b>Condition Number</b>	<b>Conditions</b>
K.1	The permittee shall pay permit fees to the Department in accordance with the requirements of S.C. Regulation 61-30, Environmental Protection Fees.
K.2	<p>In the event of an emergency, as defined in S.C. Regulation 61-62.1, Section II.L, the owner or operator may document an emergency situation through properly signed, contemporaneous operating logs, and other relevant evidence that verify:</p> <ol style="list-style-type: none"><li>1. An emergency occurred, and the owner or operator can identify the cause(s) of the emergency;</li><li>2. The permitted source was at the time the emergency occurred being properly operated;</li><li>3. During the period of the emergency, the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and</li><li>4. The owner or operator gave a verbal notification of the emergency to the Department within 24 hours of the time when emission limitations were exceeded, followed by a written report within 30 days. The written report shall include, at a minimum, the information required by S.C. Regulation 61-62.1, Section II.J.1.c.i through viii. The written report shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.</li></ol> <p>This provision is in addition to any emergency or upset provision contained in any applicable requirement.</p>
K.3	<p>(S.C. Regulation 61-62.1, Section II.O) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following:</p> <ol style="list-style-type: none"><li>1. Enter the facility where emissions-related activity is conducted, or where records must be kept under the conditions of the permit.</li><li>2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.</li><li>3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.</li><li>4. As authorized by the Federal Clean Air Act and/or the S.C. Pollution Control Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.</li></ol>

**L. EMISSIONS INVENTORY REPORTS - RESERVED**

# ATTACHMENT - Emission Rates for Ambient Air Standards

## BP Amoco Chemical Company-Cooper River Plant

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The emission rates listed herein are not considered enforceable limitations but are used to evaluate ambient air quality impact. Until the Department makes a determination that a facility is causing or contributing to an exceedance of a state or federal ambient air quality standard, increases to these emission rates are not in themselves considered violations of these ambient air quality standards (see Ambient Air Standards Requirements).

AMBIENT AIR QUALITY STANDARDS - STANDARD NO. 2					
Emission Point ID	Modeled Emission Rates (lbs/hr)				
	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO
#1ATMOS	--	--	--	--	14.00
#1HPVGTS	--	--	--	--	72.00
#1LPVGT <sup>(1)</sup>	--	--	--	--	--
#1OXGEN2	0.738	--	0.690	10.405	--
#2ATMOS	--	--	--	--	3.47
#2BULKLO	0.500	--	--	--	--
#2CRYSVE	0.540	--	--	--	20.00
#2DAYSIL	0.540	--	--	--	--
#2DRYEVE	0.260	--	--	--	--
#2FDDRUM	0.040	--	--	--	--
#2HPVGTS	0.111	--	0.008	1.468	1.238
#2NEWPTA	0.480	--	--	--	--
#2OXGEN3	0.754	--	0.429	25.770	--
#2PVS	--	--	--	--	75.00
#2SHIP	0.300	--	--	--	--
BOILER#3 - Low Load	2.540	--	47.62	8.492	7.778
BOILER#4 - Low Load	2.540	--	47.62	8.492	7.778
CVSCRUBR	1.21	--	--	--	24.00
DAYSILO1	0.42	--	--	--	--
DAYSILO2	0.42	--	--	--	--
DVSCRUBR	0.60	--	--	--	--
FEEDSLUR	0.10	--	--	--	--
ITEGEN	0.680	--	1.603	14.580	--
LCOMP1	1.800	--	3.000	3.500	--
LCOMP2	1.800	--	3.000	3.500	--
PTASTORA	1.68	--	--	--	--
RAWH2O	0.627	--	0.587	8.841	--
SCREENR3	0.10	--	--	--	--
SCREENR4	0.10	--	--	--	--
TASILOS	1.50	--	--	--	--

# ATTACHMENT - Emission Rates for Ambient Air Standards

## BP Amoco Chemical Company-Cooper River Plant

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(Permit Updated 6/27/18)

AMBIENT AIR QUALITY STANDARDS - STANDARD NO. 2					
Emission Point ID	Modeled Emission Rates (lbs/hr)				
	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO
UTCOMP#1	0.91	--	0.85	12.80	--
UTCOMP#2	0.349	--	2.333	28.556	--
UTGEN#1	0.811	--	0.754	11.445	--

CLASS II PREVENTION OF SIGNIFICANT DETERIORATION - STANDARD NO. 7					
Emission Point ID	Modeled Emission Rates (lbs/hr)				
	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	
#2BULKLO	0.500	--	--	--	
#2CRYSVE	0.540	--	--	--	
#2DAYSIL	0.540	--	--	--	
#2DRYEVE	0.260	--	--	--	
#2FDDRUM	0.040	--	--	--	
#2HPVGTS	0.111	--	0.008	1.468	
#2NEWPTA	0.480	--	--	--	
#2OXGEN3	0.754	--	0.429	1.471	
#2SHIP	0.300	--	--	--	
BOILER#1	-25.588	--	-555.533	-74.890	
BOILER#2	-25.588	--	-555.533	-74.890	
BOILER#3	2.540	--	47.620	8.492	
BOILER#4	2.540	--	47.620	8.492	
ITEGEN	0.680	--	1.603	0.833	
LCOMP1	1.800	--	3.000	3.500	
LCOMP2	1.800	--	3.000	3.500	
SCREENR3	0.01	--	--	--	
SCREENR4	0.01	--	--	--	
UTCOMP#2	0.349	--	2.333	28.556	